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ABSTRACT

A system for maintaining a concentration range of an electroreducible metal species undergoing electrolysis within a predetermined concentration range comprises a first container containing a body of an electrolyte solution in which a metal is partially dissolved, 5 a second container in fluid communication with the first container, the second container containing a second body of the solution, and a means for exchanging solution between the containers. The second container is configured with a means for electrolyzing, and a means for sensing the concentration of, the dissolved metal in the second body. During electrolysis, if the sensed concentration is within a predetermined range, the second body is 10 circulated through the electrolyzing means; if the sensed concentration is outside or nearly outside the range, the solution is exchanged to maintain the concentration within the range. Optionally, the system includes a means for sensing temperature of the second body, and a means for maintaining the temperature within a predetermined range responsive to the sensed temperature by exchanging, cooling, or heating the solution comprising the second 15 body. A method comprising these steps is also described.